



SEQUENCE LISTING

<110> FOWLKES, Dana M.
BROACH, Jim
MANFREDI, John
KLEIN, Christine
MURPHY, Andrew J.
PAUL, Jeremy
TRUEHEART, Joshua

<120> YEAST CELLS ENGINEERED TO PRODUCE PHEROMONE SYSTEM PROTEIN SURROGATES, AND USES THEREFOR

<130> CPI-012CP4DV

<140> 09/258600
<141> 1999-02-26

<150> 08/461598
<151> 1995-06-05

<150> 08/322137
<151> 1994-10-13

<150> 08/309313
<151> 1994-09-20

<150> 08/190328
<151> 1994-01-31

<150> 08/041431
<151> 1993-03-31

<160> 131

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 89
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 1
Met Arg Phe Pro Ser Ile Phe Thr Ala Val Leu Phe Ala Ala Ser Ser
1 5 10 15
Ala Leu Ala Ala Pro Val Asn Thr Thr Thr Glu Asp Glu Thr Ala Gln
20 25 30
Ile Pro Ala Glu Ala Val Ile Gly Tyr Leu Asp Leu Glu Gly Asp Phe
35 40 45
Asp Val Ala Val Leu Pro Phe Ser Asn Ser Thr Asn Asn Gly Leu Leu
50 55 60
Phe Ile Asn Thr Thr Ile Ala Ser Ile Ala Ala Lys Glu Glu Gly Val
65 70 75 80
Ser Leu Asp Lys Arg Glu Ala Glu Ala
85

<210> 2
<211> 76
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 2
Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr Lys Arg Glu
1 5 10 15
Ala Glu Ala Glu Ala Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro
20 25 30
Met Tyr Lys Arg Glu Ala Asp Ala Glu Ala Trp His Trp Leu Gln Leu
35 40 45
Lys Pro Gly Gln Pro Met Tyr Lys Arg Glu Ala Asp Ala Glu Ala Trp
50 55 60
His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr
65 70 75

<210> 3
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 3
aagcttaaaa gaatg 15

<210> 4
<211> 37
<212> DNA
<213> *Saccharomyces cerevisiae*

<220>
<221> CDS
<222> (1) . . . (24)

<400> 4
aaa gaa gaa ggg gta tct ttg ctt aagctcgaga tct 37
Lys Glu Glu Gly Val Ser Leu Leu
1 5

<210> 5
<211> 8
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 5
Lys Glu Glu Gly Val Ser Leu Leu
1 5

<210> 6
<211> 77
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<220>
<221> misc_feature
<222> 29, 30, 32, 33, 35, 36, 38, 39, 41, 42, 44, 45, 47, 48, 50,
51, 53, 54, 56, 57, 59, 60, 62, 63, 65, 66
<223> n = A,T,C or G

<400> 6
cgtgaagctt aagcgtgagg cagaagctnn knnknnknnk nnknnknnkn nknnknnknn 60
knnknnktga tcatccg 77

<210> 7
<211> 19
<212> PRT
<213> *Saccharomyces cerevisiae*

<220>
<221> VARIANT
<222> 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19
<223> Xaa = Any Amino Acid

<400> 7
Lys Arg Glu Ala Glu Ala Xaa
1 5 10 15
Xaa Xaa Xaa

<210> 8
<211> 36
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 8
Met Gln Pro Ser Thr Ala Thr Ala Ala Pro Lys Glu Lys Thr Ser Ser
1 5 10 15
Glu Lys Lys Asp Asn Tyr Ile Ile Lys Gly Val Phe Trp Asp Pro Ala
20 25 30
Cys Val Ile Ala
35

<210> 9
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 9
aagctttcga atagaaaatg 19

<210> 10
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
 <221> CDS
 <222> (1)...(27)
 <223> FRAGMENT

<400> 10
 gcc gct cca aaa gaa aag acc tcg agc tcgcttaag
 Ala Ala Pro Lys Glu Lys Thr Ser Ser
 1 5

36

<210> 11
 <211> 9
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 11
 Ala Ala Pro Lys Glu Lys Thr Ser Ser
 1 5

<210> 12
 <211> 79
 <212> DNA
 <213> *Saccharomyces cerevisiae*

<220>
 <221> misc_feature
 <222> 27, 28, 30, 31, 33, 34, 36, 37, 39, 40, 42, 43, 45, 46, 48,
 49, 51, 52, 54, 55, 57, 58
 <223> n = A,T,C or G

<400> 12
 ggtactcgag tgaaaagaag gacaacnnkn nknnknnknn knnknnknnk nnknnknnkt 60
 gtgttattgc ttaagtacg 79

<210> 13
 <211> 22
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<220>
 <221> VARIANT
 <222> 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18
 <223> Xaa = Any Amino Acid

<400> 13
 Ser Ser Glu Lys Lys Asp Asn Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10 15
 Xaa Xaa Cys Val Ile Ala
 20

<210> 14
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>

<223> FRAGMENT

<400> 14
gtttagaacc atataactagt atcaaaaatg tctg 34

<210> 15
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 15
tgatcaaaat ttactagttt gaaaaagtaa tttcg 35

<210> 16
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 16
ggcaaaatac tagtaaaatt ttcatgtc 28

<210> 17
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 17
ggcccttaac acactagtgt cgcatatata ttac 34

<210> 18
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 18
ctaaagaaga agggtatct ttgcttaagc tcgagatctc gactgataac aacagtgtag 60

<210> 19
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 19
catacacaat ataaagcttt aaaagaatga g 31

<210> 20
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 20
gctacttaag cgtgaggcag aagct 25

<210> 21
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 21
cgatgatca 10

<210> 22
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 22
ccaaaataag tacaaagctt tcgaatagaa atgcaaccat c 41

<210> 23
<211> 59
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 23
ggcgctccaa aagaaaagac ctcgagctcg cttaagttct gcgtacaaaa acgttgttc 59

<210> 24
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 24
ggtaactcgag taaaaagaag gacaac 26

<210> 25
<211> 20
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 25

cgtacttaag caataacaca	20
<210> 26	
<211> 28	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> FRAGMENT	
<400> 26	
cgtgaagctt aagcgtgagg cagaagct	28
<210> 27	
<211> 57	
<212> DNA	
<213> <i>Saccharomyces cerevisiae</i>	
<220>	
<221> misc_feature	
<222> 12, 13, 15, 16, 18, 19, 21, 22, 24, 25, 27, 28, 30, 31, 33,	
34, 36, 37, 39, 40, 42, 43, 45, 46, 48, 49	
<223> n = A,T,C or G	
<400> 27	
cggatgatca mnnnnnnnnnnm nnmnnnnnnnnm nmnnnnnnnnmnn mnnnnnnnnna gcttctg	57
<210> 28	
<211> 26	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> FRAGMENT	
<400> 28	
ggtactcgag tgaaaagaag gacaac	26
<210> 29	
<211> 60	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> FRAGMENT	
<220>	
<221> misc_feature	
<222> 22, 23, 25, 26, 28, 29, 31, 32, 34, 35, 37, 38, 40, 41, 43,	
44, 46, 47, 49, 50, 52, 53	
<223> n = A,T,C or G	
<400> 29	
cgtacttaag caataacaca mnnnnnnnnnnm nnmnnnnnnnnm nmnnnnnnnnmnn mnngttgtcc	60
<210> 30	
<211> 34	
<212> DNA	
<213> Artificial Sequence	

<220>
<223> FRAGMENT

<400> 30
gggaagctta tgccgagatc gtgctgccag ccgc 34

<210> 31
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 31
ggggaagact tctgccctgc gccgctgctg cc 32

<210> 32
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 32
ggggaagacc cgcaggaggc agaagcttgg ttgcag 36

<210> 33
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 33
gggagatctt cagtacattg gttggcc 27

<210> 34
<211> 32
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 34
Arg Asn Ser Ser Ser Ser Gly Ser Ser Gly Ala Gly Gln Lys Arg Glu
1 5 10 15
Ala Glu Ala Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr
20 25 30

<210> 35
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 35
cccggtctca catgccccaa aagaagccg 29

<210> 36
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 36
ccgtctagat gctggcagcg tggg 24

<210> 37
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 37
ttaagcgtga ggcagaagct tatcgata 28

<210> 38
<211> 28
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 38
cgcaactccgt cttcgaatag ctatctag 28

<210> 39
<211> 71
<212> DNA
<213> *Saccharomyces cerevisiae*

<220>
<221> misc_feature
<222> 19, 20, 22, 23, 25, 26, 28, 29, 31, 32, 34, 35, 37, 38, 40,
41, 43, 44, 46, 47, 49, 50, 52, 53
<223> n = A,T,C or G

<400> 39
ctggatgcga agacagctnn knnknnknnk nnknnknnkn nknnknnknn knnktgatca 60
gtctgtgacg c 71

<210> 40
<211> 17
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 40
gcgtcacaga ctgatca 17

<210> 41
<211> 56
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 41

gccgtcagta aagcttggca ttggttgcag cctatgtact gatcagtctg tgacgc 56

<210> 42

<211> 39

<212> DNA

<213> *Saccharomyces cerevisiae*

<220>

<221> CDS

<222> (1)...(39)

<400> 42

tgg cat tgg ttg cag cta aaa cct ggc caa cca atg tac
Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr

1

5

10

39

<210> 43

<211> 13

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 43

Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr
1 5 10

<210> 44

<211> 20

<212> DNA

<213> *Saccharomyces cerevisiae*

<400> 44

ctggatgcga agactcagct

20

<210> 45

<211> 69

<212> DNA

<213> *Saccharomyces cerevisiae*

<400> 45

cggatgatca gtacattggc tggccaggtt ttagctgcaa ccaatgccaa gctgagtctt 60
cgcatccag 69

<210> 46

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (1)...(39)

<223> FRAGMENT

<400> 46

tgg cat tgg cta cag cta acg cct ggg caa cca atg tac
Trp His Trp Leu Gln Leu Thr Pro Gly Gln Pro Met Tyr

1

5

10

39

<210> 47
<211> 13
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 47
Trp His Trp Leu Gln Leu Thr Pro Gly Gln Pro Met Tyr
1 5 10

<210> 48
<211> 39
<212> DNA
<213> *Saccharomyces cerevisiae*

<220>
<221> CDS
<222> (1) . . . (39)

<400> 48
tgg cat tgg ctg gag ctt atg cct ggc caa cca tta tac
Trp His Trp Leu Glu Leu Met Pro Gly Gln Pro Leu Tyr
1 5 10

39

<210> 49
<211> 13
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 49
Trp His Trp Leu Glu Leu Met Pro Gly Gln Pro Leu Tyr
1 5 10

<210> 50
<211> 39
<212> DNA
<213> *Saccharomyces cerevisiae*

<220>
<221> CDS
<222> (1) . . . (39)

<400> 50
tgg cat tgg atg gag cta aga cct ggc caa cca atg tac
Trp His Trp Met Glu Leu Arg Pro Gly Gln Pro Met Tyr
1 5 10

39

<210> 51
<211> 13
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 51
Trp His Trp Met Glu Leu Arg Pro Gly Gln Pro Met Tyr
1 5 10

<210> 52

<211> 33
<212> DNA
<213> *Saccharomyces cerevisiae*

<220>
<221> CDS
<222> (1) . . . (33)

<400> 52
tat gct ctg ttt gtt cat ttt ttt gat att ccg
Tyr Ala Leu Phe Val His Phe Phe Asp Ile Pro
1 5 10

33

<210> 53
<211> 11
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 53
Tyr Ala Leu Phe Val His Phe Phe Asp Ile Pro
1 5 10

<210> 54
<211> 33
<212> DNA
<213> *Saccharomyces cerevisiae*

<220>
<221> CDS
<222> (1) . . . (33)

<400> 54
ttt aag ggt cag gtg cgt ttt gtg gtt ctt gct
Phe Lys Gly Gln Val Arg Phe Val Val Leu Ala
1 5 10

33

<210> 55
<211> 11
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 55
Phe Lys Gly Gln Val Arg Phe Val Val Leu Ala
1 5 10

<210> 56
<211> 33
<212> DNA
<213> *Saccharomyces cerevisiae*

<220>
<221> CDS
<222> (1) . . . (33)

<400> 56
ctt atg tct ccg tct ttt ttt ttg cct gcg 33
Leu Met Ser Pro Ser Phe Phe Phe Leu Pro Ala
1 5 10

<210> 57
<211> 11
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 57
Leu Met Ser Pro Ser Phe Phe Phe Leu Pro Ala
1 5 10

<210> 58
<211> 27
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 58 27
cgggatccga tgcaattttc aacatgc
<210> 59
<211> 23
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 59 23
gctcttagatg ctactgatcc cgc
<210> 60
<211> 18
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 60 18
cgccgcatga ctccattg
<210> 61
<211> 26
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 61 26
gggttaccaa taggttcttt cttagg
<210> 62
<211> 35
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 62
ggggggagggg tgctctctag aaggaagtgt tcacc 35

<210> 63
<211> 41
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 63
gccaggaga ccagaccatg gactcattca attataccac c 41

<210> 64
<211> 42
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 64
cccttaagc gtgaggcaga agctactctg caaaagaaga tc 42

<210> 65
<211> 29
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 65
gaagatcttc agcggccgag ttgcatttc 29

<210> 66
<211> 38
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 66
gatatattaa ggttagaaac catgggtgt acagttag 38

<210> 67
<211> 34
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 67
cgagcgctcg agggAACGTA taattaaagt agtg 34

<210> 68
<211> 34
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 68

gcgccgttacc aagcttcaat tcgagataat accc	34
<210> 69	
<211> 24	
<212> DNA	
<213> <i>Saccharomyces cerevisiae</i>	
<400> 69	
cccgaaatcca ccaatttctt tacg	24
<210> 70	
<211> 27	
<212> DNA	
<213> <i>Saccharomyces cerevisiae</i>	
<400> 70	
gcggcgtcga cgccggccgcg taacagt	27
<210> 71	
<211> 37	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> FRAGMENT	
<400> 71	
ctgctggagc tccgcctgct gctgctgggt gctggag	37
<210> 72	
<211> 43	
<212> DNA	
<213> <i>Saccharomyces cerevisiae</i>	
<400> 72	
ctgctggtcg acgcggccgc gggggttcct tcttagaagc agc	43
<210> 73	
<211> 30	
<212> DNA	
<213> <i>Saccharomyces cerevisiae</i>	
<400> 73	
gggctcgagc cttcttagag cagctcgat	30
<210> 74	
<211> 37	
<212> DNA	
<213> <i>Saccharomyces cerevisiae</i>	
<400> 74	
ctgctggagc tcaagttgct gctgttgggt gctgggg	37

<210> 75
<211> 44
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 75
ctgctggtcg acgcggccgc gcccctcaga agaggccgag gtcc 44

<210> 76
<211> 29
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 76
gggctcgagc ctcagaagag gccgcagtc 29

<210> 77
<211> 37
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 77
ctgctggagc tcaagctgct gctactcggt gctggag 37

<210> 78
<211> 49
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 78
ctgctggtcg acgcggccgc cactaacatc catgttctc aataaagtc 49

<210> 79
<211> 31
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 79
gggctcgagc atgcttctca ataaagtccca c 31

<210> 80
<211> 19
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 80
gcatccatca ataatccag 19

<210> 81
<211> 23
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 81
gaaacaatgg atccacattct tac

23

<210> 82
<211> 66
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 82
Met Gly Cys Thr Val Ser Thr Gln Thr Ile Gly Asp Glu Ser Asp Pro
1 5 10 15
Phe Leu Gln Asn Lys Arg Ala Asn Asp Val Ile Glu Gln Ser Leu Gln
20 25 30
Leu Glu Lys Gln Arg Asp Lys Asn Glu Ile Lys Leu Leu Leu Gly
35 40 45
Ala Gly Glu Ser Gly Lys Ser Thr Val Leu Lys Gln Leu Lys Leu Leu
50 55 60
His Gln
65

<210> 83
<211> 65
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 83
Met Gly Cys Leu Gly Thr Ser Lys Thr Glu Asp Gln Arg Asn Glu Glu
1 5 10 15
Lys Ala Gln Arg Glu Ala Asn Lys Lys Ile Glu Lys Gln Leu Gln Lys
20 25 30
Asp Lys Gln Val Tyr Arg Ala Thr His Arg Leu Leu Leu Gly Ala
35 40 45
Gly Glu Ser Gly Lys Ser Thr Ile Val Lys Gln Met Arg Ile Leu His
50 55 60
Val
65

<210> 84
<211> 58
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 84
Met Gly Cys Thr Val Ser Ala Glu Asp Lys Ala Ala Ala Glu Arg Ser
1 5 10 15

Lys Met Ile Asp Lys Asn Leu Arg Glu Asp Gly Glu Lys Ala Ala Arg
 20 25 30
 Glu Val Lys Leu Leu Leu Gly Ala Gly Glu Ser Gly Lys Ser Thr
 35 40 45
 Ile Val Lys Gln Met Lys Ile Ile His Glu
 50 55

<210> 85
 <211> 58
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 85
 Met Gly Cys Thr Val Ser Ala Glu Asp Lys Ala Ala Val Glu Arg Ser
 1 5 10 15
 Lys Met Ile Asp Arg Asn Leu Arg Glu Asp Gly Glu Lys Ala Ala Lys
 20 25 30
 Glu Val Lys Leu Leu Leu Gly Ala Gly Glu Ser Gly Lys Ser Thr
 35 40 45
 Ile Val Lys Gln Met Lys Ile Ile His Glu
 50 55

<210> 86
 <211> 67
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 86
 Met Ala Arg Ser Leu Thr Trp Arg Cys Cys Pro Trp Cys Leu Thr Glu
 1 5 10 15
 Asp Glu Lys Ala Ala Ala Arg Val Asp Gln Glu Ile Asn Arg Ile Leu
 20 25 30
 Leu Glu Gln Lys Lys Gln Asp Arg Gly Glu Leu Lys Leu Leu Leu
 35 40 45
 Gly Pro Gly Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile
 50 55 60
 Ile His Gly
 65

<210> 87
 <211> 66
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 87
 Met Gly Cys Thr Val Ser Thr Gln Thr Ile Gly Asp Glu Ser Asp Pro
 1 5 10 15
 Phe Leu Gln Asn Lys Arg Ala Asn Asp Val Ile Glu Gln Ser Leu Gln
 20 25 30

Leu Glu Lys Gln Arg Asp Lys Asn Glu Arg Lys Leu Leu Leu Leu Gly
 35 40 45
 Ala Gly Glu Ser Gly Lys Ser Thr Ile Val Lys Gln Met Arg Ile Leu
 50 55 60
 His Val
 65

<210> 88
 <211> 66
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 88
 Met Gly Cys Thr Val Ser Thr Gln Thr Ile Gly Asp Glu Ser Asp Pro
 1 5 10 15
 Phe Leu Gln Asn Lys Arg Ala Asn Asp Val Ile Glu Gln Ser Leu Gln
 20 25 30
 Leu Glu Lys Gln Arg Asp Lys Asn Glu Val Lys Leu Leu Leu Leu Gly
 35 40 45
 Ala Gly Glu Ser Gly Lys Ser Thr Ile Val Lys Gln Met Lys Ile Ile
 50 55 60
 His Glu
 65

<210> 89
 <211> 66
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 89
 Met Gly Cys Thr Val Ser Thr Gln Thr Ile Gly Asp Glu Ser Asp Pro
 1 5 10 15
 Phe Leu Gln Asn Lys Arg Ala Asn Asp Val Ile Glu Gln Ser Leu Gln
 20 25 30
 Leu Glu Lys Gln Arg Asp Lys Asn Glu Val Lys Leu Leu Leu Leu Gly
 35 40 45
 Ala Gly Glu Ser Gly Lys Ser Thr Ile Val Lys Gln Met Lys Ile Ile
 50 55 60
 His Glu
 65

<210> 90
 <211> 66
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 90
 Met Gly Cys Thr Val Ser Thr Gln Thr Ile Gly Asp Glu Ser Asp Pro
 1 5 10 15
 Phe Leu Gln Asn Lys Arg Ala Asn Asp Val Ile Glu Gln Ser Leu Gln
 20 25 30
 Leu Glu Lys Gln Arg Asp Lys Asn Glu Leu Lys Leu Leu Leu Gly

35	40	45													
Pro	Gly	Glu	Ser	Gly	Lys	Ser	Thr	Phe	Ile	Lys	Gln	Met	Arg	Ile	Ile
50				55						60					
His	Gly														
65															

<210> 91
 <211> 39
 <212> DNA
 <213> *Saccharomyces cerevisiae*

<221> CDS
 <222> (1) ... (39)

<400> 91	39													
tgg	cat	tgg	ttg	cag	cta	aaa	cct	ggc	cag	cct	atg	tac		
Trp	His	Trp	Leu	Gln	Leu	Lys	Pro	Gly	Gln	Pro	Met	Tyr		
1			5								10			

<210> 92
 <211> 13
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 92
 Trp His Trp Leu Gln Leu Lys Pro Gly Gln Pro Met Tyr
 1 5 10

<210> 93
 <211> 39
 <212> DNA
 <213> *Saccharomyces cerevisiae*

<221> CDS
 <222> (1) ... (39)

<400> 93	39													
tgg	cat	tgg	ttg	tcc	ttg	tcg	ccc	ggg	cag	cct	atg	tac		
Trp	His	Trp	Leu	Ser	Leu	Ser	Pro	Gly	Gln	Pro	Met	Tyr		
1			5								10			

<210> 94
 <211> 13
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 94
 Trp His Trp Leu Ser Leu Ser Pro Gly Gln Pro Met Tyr
 1 5 10

<210> 95
 <211> 39

<212> DNA
<213> *Saccharomyces cerevisiae*

<221> CDS
<222> (1) . . . (39)

<400> 95
tgg cat tgg ttg tcc ctg gac gct ggc cag cct atg tac
Trp His Trp Leu Ser Leu Asp Ala Gly Gln Pro Met Tyr
1 5 10

39

<210> 96
<211> 13
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 96
Trp His Trp Leu Ser Leu Asp Ala Gly Gln Pro Met Tyr
1 5 10

<210> 97
<211> 39
<212> DNA
<213> *Saccharomyces cerevisiae*

<221> CDS
<222> (1) . . . (39)

<400> 97
tgg cat tgg ttg acc ttg atg gcc ggg cag cct atg tac
Trp His Trp Leu Thr Leu Met Ala Gly Gln Pro Met Tyr
1 5 10

39

<210> 98
<211> 13
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 98
Trp His Trp Leu Thr Leu Met Ala Gly Gln Pro Met Tyr
1 5 10

<210> 99
<211> 39
<212> DNA
<213> *Saccharomyces cerevisiae*

<221> CDS
<222> (1) . . . (39)

<400> 99

tgg cat tgg ttg cag ctg tcg gcg ggc cag cct atg tac
Trp His Trp Leu Gln Leu Ser Ala Gly Gln Pro Met Tyr
1 5 10

39

<210> 100
<211> 13
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 100
Trp His Trp Leu Gln Leu Ser Ala Gly Gln Pro Met Tyr
1 5 10

<210> 101
<211> 39
<212> DNA
<213> *Saccharomyces cerevisiae*

<221> CDS
<222> (1) . . . (39)

<400> 101
tgg cat tgg ttg agg ttg cag tcc ggc cag cct atg tac
Trp His Trp Leu Arg Leu Gln Ser Gly Gln Pro Met Tyr
1 5 10

39

<210> 102
<211> 13
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 102
Trp His Trp Leu Arg Leu Gln Ser Gly Gln Pro Met Tyr
1 5 10

<210> 103
<211> 39
<212> DNA
<213> *Saccharomyces cerevisiae*

<221> CDS
<222> (1) . . . (39)

<400> 103
tgg cat tgg ttg cgc ttg tcc gcc ggg cag cct atg tac
Trp His Trp Leu Arg Leu Ser Ala Gly Gln Pro Met Tyr
1 5 10

39

<210> 104
<211> 13
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 104
Trp His Trp Leu Arg Leu Ser Ala Gly Gln Pro Met Tyr
1 5 10

<210> 105
<211> 39
<212> DNA
<213> *Saccharomyces cerevisiae*

<221> CDS
<222> (1) . . . (39)

<400> 105 39
tgg cat tgg ttg tcg ctc gtc ccg ggg cag cct atg tac
Trp His Trp Leu Ser Leu Val Pro Gly Gln Pro Met Tyr
1 5 10

<210> 106
<211> 13
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 106
Trp His Trp Leu Ser Leu Val Pro Gly Gln Pro Met Tyr
1 5 10

<210> 107
<211> 39
<212> DNA
<213> *Saccharomyces cerevisiae*

<221> CDS
<222> (1) . . . (39)

<400> 107 39
tgg cat tgg ttg tcc ctg tac ccc ggg cag cct atg tac
Trp His Trp Leu Ser Leu Tyr Pro Gly Gln Pro Met Tyr
1 5 10

<210> 108
<211> 13
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 108
Trp His Trp Leu Ser Leu Tyr Pro Gly Gln Pro Met Tyr
1 5 10

<210> 109
<211> 39

<212> DNA
 <213> *Saccharomyces cerevisiae*

<221> CDS
 <222> (1) . . . (39)

<400> 109
 tgg cat tgg ttg cgg ctg cag ccc ggg cag cct atg tac 39
 Trp His Trp Leu Arg Leu Gln Pro Gly Gln Pro Met Tyr
 1 5 10

<210> 110
 <211> 13
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 110
 Trp His Trp Leu Arg Leu Gln Pro Gly Gln Pro Met Tyr
 1 5 10

<210> 111
 <211> 62
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 111
 Arg Ile Asp Thr Thr Gly Ile Thr Glu Thr Glu Phe Asn Ile Gly Ser
 1 5 10 15
 Ser Lys Phe Lys Val Leu Asp Ala Gly Gly Gln Arg Ser Glu Arg Lys
 20 25 30
 Lys Trp Ile His Cys Phe Glu Gly Ile Thr Ala Val Leu Phe Val Leu
 35 40 45
 Ala Met Ser Glu Tyr Asp Gln Met Leu Phe Glu Asp Glu Arg
 50 55 60

<210> 112
 <211> 62
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 112
 Arg Val Leu Thr Ser Gly Ile Phe Glu Thr Lys Phe Gln Asn Asp Lys
 1 5 10 15
 Val Asn Phe His Met Phe Asp Val Gly Gly Gln Arg Asp Glu Arg Lys
 20 25 30
 Lys Trp Ile Gln Cys Phe Asn Asp Val Thr Ala Ile Ile Phe Val Val
 35 40 45
 Ala Ser Ser Ser Tyr Asn Met Val Ile Arg Glu Asp Asn Gln
 50 55 60

<210> 113

<211> 62
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 113
Arg Val Lys Thr Thr Gly Ile Val Glu Thr His Phe Thr Phe Lys Asp
1 5 10 15
Leu His Phe Lys Met Phe Asp Val Gly Gly Gln Arg Ser Glu Arg Lys
20 25 30
Lys Trp Ile His Cys Phe Glu Gly Val Thr Ala Ile Ile Phe Cys Val
35 40 45
Ala Leu Ser Ala Tyr Asp Leu Val Leu Ala Asp Glu Glu Met
50 55 60

<210> 114
<211> 62
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 114
Arg Val Lys Thr Thr Gly Ile Val Glu Thr His Phe Thr Phe Lys Asp
1 5 10 15
Leu Tyr Phe Lys Met Phe Asp Val Gly Gly Gln Arg Ser Glu Arg Lys
20 25 30
Lys Trp Ile His Cys Phe Glu Gly Val Thr Ala Ile Ile Phe Cys Val
35 40 45
Ala Leu Ser Asp Tyr Asp Leu Val Leu Ala Glu Asp Glu Glu
50 55 60

<210> 115
<211> 62
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 115
Arg Val Lys Thr Thr Gly Ile Val Glu Thr His Phe Thr Phe Lys Asn
1 5 10 15
Leu His Phe Arg Leu Phe Asp Val Gly Gly Gln Arg Ser Glu Arg Lys
20 25 30
Lys Trp Ile His Cys Phe Glu Asp Val Thr Ala Ile Ile Phe Cys Asn
35 40 45
Ala Leu Ser Gly Tyr Asp Gln Val Leu His Glu Asp Glu Thr
50 55 60

<210> 116
<211> 62
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 116

Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Glu Asn
 1 5 10 15
 Ile Ile Phe Lys Met Val Asp Ala Gly Gly Gln Arg Ser Glu Arg Lys
 20 25 30
 Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe Leu Val
 35 40 45
 Ala Leu Ser Glu Tyr Asp Gln Cys Leu Glu Glu Asn Asn Gln
 50 55 60

<210> 117
 <211> 62
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 117
 Arg Met Pro Thr Thr Gly Ile Asn Glu Tyr Cys Phe Ser Val Gln Lys
 1 5 10 15
 Thr Asn Leu Lys Ile Val Asp Ala Gly Gly Gln Arg Ser Glu Arg Lys
 20 25 30
 Lys Trp Ile His Cys Phe Glu Asn Ile Ile Ala Leu Ile Tyr Leu Ala
 35 40 45
 Ser Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Ser Asp Asn
 50 55 60

<210> 118
 <211> 25
 <212> DNA
 <213> *Saccharomyces cerevisiae*

<400> 118
 agtttctgcc tcacgcttaa gtagc 25
 <210> 119
 <211> 26
 <212> DNA
 <213> *Saccharomyces cerevisiae*

<400> 119
 gttgtccttc ttttcactcg agtacc 26

<210> 120
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> FRAGMENT

<400> 120
 Leu Leu Leu Leu Gly Ala Gly Glu Ser Gly
 1 5 10

<210> 121
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 121
Leu Leu Leu Leu Gly Ala Gly Glu
1 5

<210> 122
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 122
Gln Ala Arg Lys Leu Gly Ile Gln
1 5

<210> 123
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 123
Leu Ile His Glu Asp Ile Ala Lys Ala
1 5

<210> 124
<211> 5
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 124
Asp Val Gly Gly Gln
1 5

<210> 125
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 125
Ser Ser Gly Ala Gly Lys Arg
1 5

<210> 126
<211> 69
<212> DNA
<213> Artificial Sequence

<220>
<223> FRAGMENT

<400> 126
gacctacgct tctgagtcga accgtAACCA acgtcgattt tggaccggtt ggttacatga 60
ctagtaggc 69

<210> 127
<211> 9
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 127
Gly Ser Gly Glu Ser Gly Asp Ser Thr
1 5

<210> 128
<211> 5
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 128
Asp Val Gly Gly Gln
1 5

<210> 129
<211> 11
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 129
Tyr Ile Ile Lys Gly Val Phe Trp Asp Pro Ala
1 5 10

<210> 130
<211> 4
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 130
Glu Ala Glu Ala
1

<210> 131
<211> 62
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 131
Arg Ile Asp Thr Thr Gly Ile Thr Glu Thr Glu Phe Asn Ile Gly Ser
1 5 10 15
Ser Lys Phe Lys Val Leu Asp Ala Gly Gly Gln Arg Ser Glu Arg Lys
20 25 30
Lys Trp Ile His Cys Phe Glu Gly Ile Thr Ala Val Leu Phe Val Leu
35 40 45
Ala Met Ser Glu Tyr Asp Gln Met Leu Phe Glu Asp Glu Arg
50 55 60